

Application No.: 09/067,638

**Amendments to the Claims:**

The Claim Listing below will replace all prior versions of the claims in the application.

Please amend Claims 83, 85-87 as follows:

**Claim Listing:**

1-82. (canceled).

83. (Currently amended) A system of associated components for preparing a set of oligonucleotides that modulates expression of a selected nucleic acid comprising:

a computer system that

- i) generates a list of oligonucleotide sequences according to a desired oligonucleotide length, thereby generating a series of oligonucleotide sequences;
- ii) applies a virtual oligonucleotide chemistry to the oligonucleotide sequences generated in step i) to yield a set of virtual oligonucleotides;
- iii) generates a subset of said set of virtual oligonucleotides, said subset being the result of a decision to target based on targeting a functional region of said selected nucleic acid; and
- iv) generates synthesis instructions in computer manipulable form for said oligonucleotide sequences in said subset of said set of virtual oligonucleotides;

an automated synthesizer that receives said synthesis instructions from said computer system and synthesizes only said oligonucleotide sequences in said subset of said set of virtual oligonucleotides, wherein the product of said synthesis is a set of synthesized oligonucleotides; and

an apparatus that accepts said set of synthesized ~~real~~ oligonucleotides and performs at least one procedure for each of said synthesized ~~real~~ oligonucleotides wherein said procedure identifies particular members of said set that modulate expression of said selected nucleic acid.

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84. (Previously presented) The system of claim 83 wherein said functional region is the transcription start site, 5' cap, start codon, 5' untranslated region, 3' untranslated region, stop codon, 5' splice site or polyadenylation site.

85. (Currently amended) A system of associated components for preparing a set of oligonucleotides that modulates expression of a selected nucleic acid comprising:

a computer system that

- i) generates a list of oligonucleotide sequences according to a desired oligonucleotide length, thereby generating a series of oligonucleotide sequences;
- ii) applies a virtual oligonucleotide chemistry to the oligonucleotide sequences generated in step i) to yield a set of virtual oligonucleotides;
- iii) generates a subset of said set of virtual oligonucleotides, said subset being the result of a decision to based on: a) targeting target a functional region of said selected nucleic acid; b) target an accessible site accessibility to on said selected nucleic acid, and/or c) uniform distribution of uniformly distribute oligonucleotide compounds across said selected nucleic acid; and
- iv) generates synthesis instructions in computer manipulable form for said oligonucleotide sequences in said subset of said set of virtual oligonucleotides;

an automated synthesizer that receives said synthesis instructions from said computer system and synthesizes only said oligonucleotide sequences in said subset of said set of virtual oligonucleotides, wherein the product of said synthesis is a set of synthesized oligonucleotides;

a first apparatus that accepts said set of synthesized real oligonucleotides and performs at least one procedure for each of said synthesized real oligonucleotides wherein said procedure identifies particular members of said set that modulate expression of said selected nucleic acid; and

a second apparatus for analyzing said set of synthesized oligonucleotides by a method or technique, selected from the group consisting of liquid

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chromatography, optical densitometry ~~density reader~~, mass spectroscopy, gel fluorescence and scintillation imaging, and capillary gel electrophoresis.

86. (Currently amended) A system of associated components for preparing a set of oligonucleotides that modulates expression of a selected nucleic acid comprising:

a computer system that

- i) generates a list of oligonucleotide sequences according to a desired oligonucleotide length, thereby generating a series of oligonucleotide sequences;
- ii) applies a virtual oligonucleotide chemistry to the oligonucleotide sequences generated in step i) to yield a set of virtual oligonucleotides;
- iii) generates a subset of said set of virtual oligonucleotides, said subset being the result of a decision to based on: a) targeting target a functional region of said selected nucleic acid, b) target an accessible site ~~accessibility to~~ on said selected nucleic acid, and/or c) ~~uniform~~ distribution of uniformly distribute oligonucleotide compounds across said selected nucleic acid; and
- iv) generates synthesis instructions in computer manipulable form for said oligonucleotide sequences in said subset of said set of virtual oligonucleotides;

an automated synthesizer that receives said synthesis instructions from said computer system and synthesizes only said oligonucleotide sequences in said subset of said set of virtual oligonucleotides, wherein the product of said synthesis is a set of synthesized oligonucleotides; and

an apparatus that accepts said set of synthesized ~~real~~ oligonucleotides and performs at least one procedure for each of said synthesized ~~real~~ oligonucleotides wherein said procedure identifies particular members of said set that modulate expression of said selected nucleic acid, ~~and wherein said property is modulating said selected nucleic acid.~~

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87. (Currently amended) A system of associated components for preparing a set of oligonucleotides that modulates expression of a selected nucleic acid comprising:

a computer system that

- i) generates a list of oligonucleotide sequences according to a desired oligonucleotide length, thereby generating a series of oligonucleotide sequences, wherein said computer system searches at least one database for alternative transcripts for said selected nucleic acid;
- ii) applies a virtual oligonucleotide chemistry to the oligonucleotide sequences generated in step i) to yield a set of virtual oligonucleotides;
- iii) generates a subset of said set of virtual oligonucleotides, said subset being the result of a decision to based on: a) targeting target a functional region of said selected nucleic acid, b) target an accessible site accessibility to on said selected nucleic acid, and/or c) uniform distribution of uniformly distribute oligonucleotide compounds across said selected nucleic acid; and
- iv) generates synthesis instructions in computer manipulable form for said oligonucleotide sequences in said subset of said set of virtual oligonucleotides;

an automated synthesizer that receives said synthesis instructions from said computer system and synthesizes only said oligonucleotide sequences in said subset of said set of virtual oligonucleotides, wherein the product of said synthesis is a set of synthesized oligonucleotides; and

an apparatus that accepts said set of synthesized ~~real~~ oligonucleotides and performs at least one procedure for each of said synthesized ~~real~~ oligonucleotides wherein said procedure identifies particular members of said set that modulate expression of said selected nucleic acid.